ABSTRACT

The arrangements described herein are based upon a theory of selective absorption of hydrogen sulphide over carbon dioxide from gas based on countercurrent contact between gas and tertiary or other amines which exhibit preferential affinity for H_2S over CO_2 primarily because of differential rates of absorption of the two gases. The process of enhanced selective absorption is accomplished by performing the absorption in two steps. The first operation is to contact lean amine with sour gas which contains both H_2S and CO_2. The object of the first operation is to produce an overhead gas that meets an arbitrary standard for content of H_2S and CO_2. The second operation is to enhance the selectivity for H_2S by contacting the rich amine leaving the first operation with a second gas which is a highly concentrated acid gas having a higher H_2S/CO_2 ratio than the first acid gas.